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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, CHAU M

ART UNIT PAPER NUMBER

2633

DATE MAILED: 06/01/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/930,754

Applicant(s)

RAMADAS ET AL.

Examiner

Chau M Nguyen

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US Pat. App. Pub. No. US 2002/01866531 A1) in view of Abushagur (U.S. Pat. No. 6,385,364 B1).

As claim 1, Jensen discloses an optical switching system (fig. 1), the optical switching system comprising:

an optical switch (110, in associate with device 104), being capable of deflecting a light beam from an input port to an output port (page 1, paragraph [0007], lines 3-6);
a communication interface bus (see fig. 1) coupled to the optical cross-connect;
a first routing module (such as 106) coupled to the communication interface bus, the first routing module comprising a route forwarding table (page 2, paragraph [0013]);
and

a second routing module (such as 108) coupled to the communication interface bus, the second routing module being adapted to provide a redundant process for the first routing module, the second routing module being adapted to receive a copy of a

portion of the route forwarding table from the first routing module during a time period that the first routing module is active while the second routing module is in a standby state (page 3, paragraph [0027]).

Jensen discloses switch, but he does not clearly show a switch having a plurality of mechanical switching devices, each of the switching devices being capable of deflecting a light beam from an input port to an output port;

However, Abushagur discloses an optical cross connect having a plurality of mechanical switching devices (fig. 1), each of the switching devices being capable of deflecting a light beam from an input port to an output port (col. 1, line 66 - col. 2, lines 2). Therefore, it would have been obvious to one having ordinary skill in the art to apply the optical cross-connect, as taught by Abushagur, into the optical switching system of Jensen in order to route the optical signals from the input to the output fibers. One would have motivated for doing this since the switch (of Abushagur) offers significant reconfiguration speed and routing flexibility advantages (Abushagur, col. 2, lines 33-35).

As claims 2 and 3, Jensen discloses the router having IP address and several routers having same IP address (page 1, paragraph [0009], lines 1-7).

As claims 4, 5 and 7, Jensen discloses a router including memory (page 2, paragraph [0014], lines 2-5 and page 4, col. 2, claim 11, last paragraph). Jensen does not clearly disclose the size and access time of memory as cited in the invention claimed. However, it would have been an obvious matter of design choice to setup the

size and the access time of the memory that satisfies the cost and requirements of the tasks, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

As claim 8, Jensen discloses route database is dynamic (Jensen, paragraph [0009], lines 3-7).

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US Pat. App. Pub. No. US 2002/01866531 A1) in view of Abushagur (U.S. Pat. No. 6,385,364 B1), as applied in the claim 1, and in further view of Watson et al. (Hereinafter "Watson") (US Pat. App. Pub. No. US 2002/0167952 A1).

As claim 6, the combination system of Jenson and Abushagur does not show the first routing module and the second routing module are each coupled to a hub. However, Watson discloses the hub (504, see fig. 4) for coupling router MCP (Master control processor – 11, see Abstract) as a first routing module and router MCP (Master control processor – 12) as a second routing module (Watson, page 4, paragraph [0034]). As these reference are related to redundant routing process in an optical system, therefore, it would have been obvious to one having ordinary skill in the art to use a hub as taught by Watson into the above combination system in order to route

signals. One would have motivated with the reason of supporting bi-directional for the links (Watson, paragraph [0034]).

4. Claims 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US Pat. App. Pub. No. US 2002/01866531 A1) in view of Abushagur (U.S. Pat. No. 6,385,364 B1), and in further view of Course et al. (Hereinafter "Course") (U.S. Pat. 5,317,565).

As claim 9, Jensen discloses an optical switching system (fig. 1) having a redundant route control for communication interface, the optical switching system comprising:

- a optical cross-connect (110, in associate with device 104) (see fig. 1), being capable of defecting a light beam from an input port to an output port (page 1, paragraph [0007], lines 3-6);

- a communication interface bus (fig. 1) coupled to the optical cross-connect;

- a first routing module (such as 106) coupled to a first network connection, the first routing module also coupled to the communication interface bus (page 2, paragraph [0013]); and

- a second routing module (such as 108) coupled to a second network connection, the second routing module also coupled to the communication interface bus, the second routing module being adapted to provide a redundant process for the first routing module (page 3, paragraph [0027]);

Jensen does not clearly show:

a plurality of mechanical switching devices, each of the switching devices being capable of deflecting a light beam from an input port to an output port in an in-band communication interface; and

the first and second routing modules for and out-of-band communication interface.

wherein, the out-of-band communication interface is free from an interaction with the in-band communication interface such that the out-of-band communication interface communicates through an alternative path from the in-band communication interface.

However, Abushagur discloses an optical cross connect (fig. 1) including a plurality of mechanical switching devices (col. 1, line 66 - col. 2, line 2). Further, Course discloses switch being capable defecting in an in-band communication interface (Course, col. 7, lines 7-9) and routing module be able for out-of-band communication interface (col. 7, lines 9-12).

Since all three references are related to the optical field of switching and routing optical signal, therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to:

consider the configuration of the switch (optical cross-connect) as taught by Abushagur into the redundant optical system of Jensen in order to create an optical system that enhances the redundant process; and

apply the switch to be operated with in-band communication interface and the routing module to be operated with out-of-band communication interface as taught by

Course into the above optical system in order to provide the system without interaction between two groups of signals.

Motivation from one having ordinary skill in the art is considering the flexibility in routing optical signal and improving the switching speed (Abushagur, col. 2, lines 30-35), and permit sequencing procedures for each of the control buses to operate independently as well (Course, col. 4, lines 65-67).

As claim 10, Jensen discloses first routing module comprises a route forwarding table and wherein the second routing module adapted to provide a redundant process for the first routing module, the second routing module adapted to receive a copy of the route forwarding table from the first routing module during a time period that the first routing module is active (page 3, paragraph [0027]).

5. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US Pat. App. Pub. No. US 2002/01866531 A1) in view of Course (U.S. Pat. 5,317,565).

As claim 11, Jensen discloses a method for providing redundant communication, the method comprising:

receiving an update of information from a network (page 3, paragraph [0026], and lines 6-8);

calculating route information based upon the update of information (page 3, paragraph [0026], lines 10-12);

updating route forwarding information based upon the route information in a first volatile memory location; and

updating route forwarding information based upon the route information in a second volatile memory location (page 3, paragraph 0027], lines 1-10).

Jensen does not clearly show the operation band (out-of-band) of the system. However, Course discloses the routing module be able for out-of-band communication interface (col. 7, lines 9-12). Therefore, it would have been obvious to one having ordinary skill in the art to provide out-of-band communication as taught by Course in the method of Jensen in order to perform the redundant process with out-of-band communication. One would have motivated for doing this to permit sequencing procedures for each of the buses to be operated independently (Course, col. 4, lines 65-67).

As claim 12, Jensen discloses the receiving and calculating are provided in a first routing module (such as router 106) (page 3, paragraph [0026], and lines 6-8);

As claim 13, Jensen discloses the updating the second volatile memory location is provided in a second routing module (such as router 108), the second routing module being a backup to the first routing module (such as router 106) (page 3, paragraph [0027], last three lines);

As claims 14 and 15, Jensen discloses updating the first volatile memory location and updating the second volatile memory location are provided at about the same time (Jensen, page 3, paragraph [0028], lines 8-12).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nguyen et al. (U.S. Pat. No. 5,790,518) is cited to show 1-for-N redundancy implementation on midplane.

Shew et al. (U.S. Pat. No. 6,530,032 B1) is cited to show network fault recovery method and apparatus.

Reeve (U.S. Pat. No. 6,314,092 B1) is cited to show routing in a communications network.

Dantu et al. (U.S. Pat. No. 6,532,088 B1) is cited to show system and method for packet level distributed routing in fiber optic rings.

Galway et al. (U.S. Pat. No. 6,650,646 B1) is cited to show digital communication system.

Alexander, Jr. et al. (U.S. Pat. No. 5,949,753) is cited to show redundant internet protocol gateways using LAN emulation.

Brewer et al. (U.S. Pat. No. 6,711,357 B1) is cited to show timing and synchronization for an IP router using an optical switch.

Watson et al. (U.S. Pub. No. US 2002/0167952 A1) is cited to show system and method for TCP connection protection switching.


Swanson et al. (U.S. Pub. No. US 2002/0163685 A1) is cited to show system and method for routing working and protect paths.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau M. Nguyen whose telephone number is 703-305-8965. The examiner can normally be reached on Mon-Fri from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4726. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

C.M.N.
May 11, 2004


JASON CHAN
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